From: Paul B. Manson <paulmanson@seabreezepower.com>
To: claufenb@energy.state.ca.us
CC: moniquestevenson@seabreezepower.com, Rod_Lenfest@SBP-RTS.com, RLL@trmc.com; Rod_Lenfest@SBP-RTS.com

Date: 11/19/2008 4:18 PM
Subject: WITH ATTACHMENT - Sea Breeze Comments - Phase 1B Draft Report of the Renewable Energy Transmission Initiative (RETI)
Attachments: AK-CA map 081121.pdf

Dear Clare Laufenberg Gallardo,

Sea Breeze Pacific Regional Transmission System Inc. appreciates the opportunity to submit comments on the Phase 1B Draft Report of the Renewable Energy Transmission Initiative (RETI).

Our comments are both general to the issues and methodology of RETI, as well as specific to relevant inclusions in the Phase 1B DRAFT Report ("DRAFT Report").

It should be noted that a report commissioned by BC Hydro and written by Garrard Hassan (May, 2007) has identified close to 60,000 MW of wind power under development within British Columbia. (Figure 4-6, depicting north out-of-state resources, does not include detail of BC's resources)

Apparently only 340 MW of the potential 60,000 MW were deemed competitive in the DRAFT Report's analysis.

During the November 5 conference call, Monique Stevenson of Sea Breeze contributed verbal comments regarding out-of-state resources, particularly those sourced from British Columbia.

The ranking of BC's resources in the DRAFT Report is influenced largely on assumptions based on PG&E's proposed BC-NorCal line.

Our understanding is that that the BC-NorCal line terminates in the south at Table Mountain Substation (near Sacramento) rather than connecting directly to San Francisco (as noted in the report) and that wheeling directly into San Francisco (or even East Bay) would have further very substantial cost implications.

Also, there are other projects in the WECC path rating process that are expected to come in at a substantially lower cost, and serve the same purpose as the BC-NorCal line (i.e. to access BC's renewables).

Apart from pure cost considerations, factors which favour competing projects, such as substantially shorter time lines to completion and lower permitting risk (due to routing considerations) would have a material positive impact on the viability of British Columbia as a significant source of supply for renewable energy for California.

It should be noted that Sea Breeze's proposed West Coast Cable is presently ahead of the BC-NorCal line in terms of WECC required technical studies and the WECC path rating process, and is expected to cost roughly half the capital cost of the BC-NorCal line, and be permitted and built in roughly half the

time. The West Coast Cable, using HVDC and HVDC Light/Plus technology could be split at its southern terminus in San Francisco Bay, and would be able to simultaneously deliver to up to 8 Bay Area substations.

It should also be noted that Sea Breeze's Juan de Fuca Cable (presently fully permitted on the US side, and with the main Canadian federal permits also now in hand)could provide immediate access for BC renewables to Van Nuys/ Los Angeles, California via the Pacific Intertie, and in future, integrate with the West Coast Cable to deliver to the Bay Area.

Although it is at roughly the same stage of development as the BC-NorCal line, there was likewise no mention of Sea Breeze's HVDC Triton Line, the southern portion of which would interconnect BC's Vancouver Island with San Francisco, and the northern portion Vancouver Island with Southeast Alaska.

This has very important implications for the cost of delivering renewable power from BC's renewables rich Central/North Coasts and Southeast Alaska, because the assumptions supporting the BC-NorCal line inherently penalize energy drawn from those regions with 20-30% losses.

Transmission from those regions (which boast wind capacity factors above 40% and which have been identified by the World Energy Council and the Petroleum Economist as holding the #1 wind resource in the world) would be most efficiently harvested and transmitted using HVDC technology at source, rather than being wheeled for a thousand miles over congested AC lines to meet the BC-NorCal line's northern terminus.

PLEASE SEE ATTACHED MAP WHICH ILLUMINATES MANY OF THE ABOVE COMMENTS.

In brief, we believe that the narrow scope of the DRAFT Report of only looking at the BC-NorCal project reflects negatively on BC's resource ranking and that there is material value to incorporating other planned transmission projects and technology (for example submarine HVDC) into the report.

On a more general basis, we have the following comments:

The fundamental reason for the development of the California Renewable Portfolio Standard was to protect the environment. The environment also should provide the focus for the side-by-side comparisons of competing projects.

The reasons for choosing underground, underwater HVDC and HVDC Light® /HVDC Plus cable-based systems are manifold, and include environmental, social, health, reliability, efficiency, stability, and national security improvement advantages, to name a few.

From an environmental perspective, cable requires far less overall material to manufacture and set in place than do overhead transmission lines. [For example, meter for meter, an underground 400 kV cable would require 13 kg of materials used per meter, versus 479 kg per meter for overhead line (ref: “Light and Invisible”, Ravemark and Normark, ABB Review #4, 2005).] The cross-linked polyethylene (XLPE) cables require no oil for cooling and hence pose no problem that oil might be leaked into the environment. And because they are DC (direct current) lines, there is no varying EMF which may be problematic to sensitive aquatic species. Similarly, there are no fluctuating EMF concerns for human

health, only a low level, steady magnetic field in the immediate vicinity of the cable, comparable in strength to the Earth's own naturally occurring magnetic field.

HVDC provides much lower losses than the AC equivalent over long distances, which means that fewer generators need to be built, and more of the energy produced actually gets to the customer, rather than being lost along the way as unused heat. The ongoing use of herbicides to control vegetation beneath power lines is also unnecessary when cables are the chosen alternative.

The cables are buried on land, and in shallower areas, are typically fully buried at sea as well. The flexibility of the cable allows it to be routed around ecologically sensitive areas, and horizontal directional drilling can be used to go under, and thus avoid, bio-active regions. Because the cables are out of sight, unlike their unsightly overhead cousins, they do not lower property values or in other ways degrade the natural beauty of the area, which makes them far easier to permit. "Not in my back yard" (NIMBY) concerns virtually disappear, because of the benign nature and invisibility of the technology. Even the design of the converter stations, which are present on either end, can be modified to accommodate and be compatible with the local architecture.

The converter stations are capable of much more than just turning AC electricity into DC electricity and vice versa. Each one is a fully functional Static VAR Compensator (SVC) providing a "best available technology" to support and strengthen the AC systems within which it is embedded. In many cases utilities choose to install SVCs within their systems to provide much needed voltage support and stability even when there is no interconnecting cable present.

In closing, we recommend that the RETI Steering Committee ensure that comparisons (similar to those suggested below) between competing transmission projects be taken into consideration.

Had this methodology already been in place for the Phase 1 DRAFT Report, we take the liberty of conjecturing that substantially different results may have been attained with regard to the cost effectiveness of procuring renewables from points north of California.

A Gross Right of Way Required (acres)

B Steel Required tons, energy required to produce, and tons of GHGs emitted in production)

C Concrete Required (tons, energy required to produce, and tons of GHGs emitted in production)

D Estimated Losses for the Entire Electrical Path (percent from Points of likely Generation to Points of likely Consumption)

E Estimated additional capital costs for transmission infrastructure to reach from the project's terminals to Points of likely Generation and Points of likely Consumption

F Estimated right of way and materials impact of additional transmission infrastructure (as in A – E above)

G Energy lost due to electrical transmission losses over the anticipated lifetime of the project (MWHs & retail value)

H Additional Generators required to account for losses (number, cost, energy required to produce, and tons of GHGs emitted in production)

I Estimated materials impact of additional generation infrastructure (as in A – E above)

J Will the project guarantee that no non-sequestered coal-generated energy will be accommodated?

K Level of sophistication required to mount a terrorist attack against project at its most vulnerable point (dollars)

L Estimated total amount of defoliant chemicals to be used over project lifetime to maintain right-of-way

Thanks for your assistance with this endeavor.

Sincerely,

Paul Manson

Paul B. Manson
President & CEO,
Sea Breeze Power Corp.
Lobby Mail Box 91
1400-333 Seymour Street
Vancouver BC V6B 5A6 Canada
ph: (604) 689-2991 ext. 225
fax: (604) 689-2990